DOCUMENT RESUME

ED 261 428 CS 505 030

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TITLE Computer Conferencing and Education: Complementary or Contradictory Concepts?
PUB DATE May 85
NOTE 26p.; Paper presented at the Annual Meeting of the International Communication Association (35th, Honolulu, HI, May 23-27, 1985).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Adult Education; *Communication Research; Computer Assisted Instruction; Educational Environment; *Group Dynamics; Group Experience; Interpersonal Relationship; *Program Effectiveness; *Program Evaluation; Psychological Needs; Social Adjustment; *Student Reaction; *Teleconferencing

ABSTRACT

To understand how computer conferencing can be used to meld communication and education among remotely located high-level professions, an ongoing exploratory study started to collect data from participants in an advanced adult education course conducted primarily via computer-mediated communication in the area of top level management. The questions posed to the students had three broad research foci: an evaluation of the system as an adult educational environment, the computer as a communication medium, and the social dynamics and interactions among students, instructors and program organizers. The data collected thus far have yielded the following information: (1) the primary reason for enrolling in the course was an interest in the computer-mediated communication process itself, (2) the quality of the social interaction among the seminar participants was most frequently considered to be variable at best, (3) those areas in which the seminars were judged to be most successful were at providing potentially open forums for frank exchange and getting acquainted with new ideas, and (4) there were intriguing issues that dealt with personal feelings and communication dynamics. (HOD)

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COMPUTER CONFERENCING AND EDUCATION:

COMPLEMENTARY OR CONTRADICTORY CONCEPTS?

by

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Presented to the Human Communication Technology Special Interest Group at the 35th Annual Conference of the International Communication Association, Honolulu, May 1985.

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Abstract

These are the preliminary results of a larger on-going qualitative study of an advanced adult education course conducted primarily via computer-mediated communication in the area of top-level management. Baseline survey data regarding the reasons for enrolling and expectations of new students as well as the participation patterns and the evaluations of continuing students are presented. These are framed within the three broad areas of research: education, computer communications, and social dynamics. Several follow-up interviews were also conducted. The resulting information is incorporated in this report, providing a new array of issues for consideration, including socio-emotional needs, barriers to increased active participation and ethical issues which may inhibit future research in this area.

Introduction

Computer conferencing and education: are they complementary or contradictory concepts? Questions concerning the applicability of this relatively new communications medium within various social institutions have been addressed in communications literature. Most research has been done within the organizational context, (eg. Finn, 1984; Hiltz, Turoff & Johnson, 1984; Rice, 1980, 1984; and Steinfield, 1983) and within the university educational context (Rice & Case, 1983; Kiesler et al., 1982). There has been speculation regarding the utility of computer-mediated communication applied to adult education, but a lack of real examples of such a system in actual use. To understand how the medium can be used to meld communication and education among remotely located high-level professionals, a longitudinal, qualitative research study is currently being undertaken, with baseline data reported here.

EDCOM as an educational institution.** The data for this on-going exploratory study are being gathered from participants in an advanced adult education course, conducted primarily via computer-mediated communication in the area of top-level management. The instructors, who each teach a one-month seminar, are experts in their fields, and many are of international repute. Students, who pay a large annual tuition fee for the two-year course, hold high-level positions in business and academia. Many of the companies and institutions represented are concerned with futures research and more humanistic approaches to management in a high-technology world.

EDCOM has designed this innovative combination of computer communications and education for use at a professional level. The management of this course is guided by a director who is responsible for recruiting both students and faculty. An additional staff person monitors the operation of the system, which currently uses the facilities of a larger computer communications system, and acts as a trouble-shooter. He has also been instrumental in the design of a communications software package specifically designed for this larger system to facilitate easier access and use. The particular system being used offers users the chance to enter conference comments either in a synchronous, on-line mode, or off-line in a text-editing mode. There are no limits to the allowable entry length.

EDCOM is very interested in obtaining feedback, as part of a formative evaluation, so that the system can better meet the expectations of present and future participants. Members of the organization felt it was appropriate to bring in outside researchers whose area of expertise is the study of various applications and impacts of interactive communications media. This paper presents results of the initial phase of this investigation.

The educational structure. One face-to-face orientation session is held at the beginning of each semester, to introduce students, faculty and staff to one another and to familiarize students with equipment operation and curriculum content. At this point, students sign up for particular seminars, also referred to as conferences. Further instruction and communication occurs on-line and each participant has access to a

personal computer with a telephone interface (a modem). The instructional design changes slightly each semester, but basically the instructor's role is to assign reading and homework, to give written lectures and to lead discussions. No formal grading or mechanism for ensuring active participation exists.

In addition to the formal conferences, a private messaging system is available for students' use. Thus the establishment of personal and professional networks that go beyond the primary educational context is made possible.

Population information. The current EDCOM students (who started in 1984) were given baseline surveys; these were distributed to 26 students and of these 17 were returned. The average age of these respondents, all of whom are male, is 49. Only one person is younger than 35 years old. Twelve respondents have previously been enrolled in non-degree educational programs (other than EDCOM). Nine participants reported having previous experience using computer-mediated communication systems.

Other information was obtained from informal interviews conducted by the researchers, who were present at the orientation meeting. Several unstructured follow-up interviews were conducted via telephone, after the fall semester had begun, to assess first impressions of the system. More complete, in-depth interviews are planned for a later date, as well as detailed content analyses of conference transcripts.

Research Overview

This research represents a preliminary assessment of the

motivations for joining and the expectations of new students, as well as a short evaluation of the past semesters attended by continuing students in the program. The questions posed were framed within the context of the three broad foci of research: an evaluation of the system as an adult educational environment, the computer as a communications medium and the social dynamics and interactions among students, instructors and program organizers. Rather than presenting hypotheses, these foci are presented as general questions to be answered within the course of the study. The questions are not necessarily based on any particular theoretical view, but reflect issues that have arisen throughout previous studies and from our initial, informal interviews with EDCOM organizers, students and instructors.

Educational evaluation. Within this area, the particular interest is in discovering how this medium succeeds as an electronic classroom environment. Are computer conferences conducive to the perception of real learning and accumulation of knowledge? How are student and instructor roles specifically related to the unique properties of computer mediated communication? Is education by computer qualitatively different than any traditional mode? Do instructors and students vie for control or power? What learning strategies work best? Finally, do "passive participants" also share in the learning process?

Computer communications. The primary interest here is in how participants feel about the medium as a means for establishing communication links and a sense of "community," and how they feel about the technology. For example, does the "classroom" become, at some point, more than just a group of

students and take on the characteristics of a private "community?" What other media are used among members of this community--do they phone, visit or write each other? Do prior relationships affect computer communication patterns? How do participants use humor or express emotions--are they reluctant to reveal intimate or controversial information? What kinds of reinforcement are needed or given? Do members experience technical difficulties that may hinder participation?

Social dynamics. The concern here is with the ways in which the system's structure facilitates or hinders social relationships and the formation of networks as well as the individual perceptions of participants concerning the group's interactions. For instance, do particular leaders seem to emerge, and if so, what are the qualities that are linked to those thought of as being influential? How do social relationships form and change among participants? Do smaller coalitions form? Do certain students become dominant and why? Do new students have trouble becoming recognized? Lastly, what types of networks become established and how are they maintained outside the computer environment?

Additional factors that directly affect active participation or satisfaction with this system will also be discussed in this paper. Several interviews conducted after the surveys were distributed yielded intriguing and important information regarding emotional needs and problems, barriers to success and potential barriers to continued research in this area.

Survey Results

The survey, intended to establish baseline information, was distributed to students at an initial face-to-face orientation meeting, held prior to the commencement of the semester's first seminar session. Demographic data were collected from all participants, who were asked if they had attended previous EDCOM seminars. Those who had (the continuing students) were asked to fill out an evaluation section, organized around the three major research areas. New students were asked to complete a separate section designed to assess their reasons for enrolling and their expectations revolving around the three foci of attention. At a later point, they will be asked to evaluate the seminars, and their responses compared to their pre-seminar data for interesting changes or confirmation of expectations.

Twenty-six questionnaires were distributed. Of these, 17 were completed and returned. Twelve surveys came from new students, while 5 were received from continuing students.

New Students' Expectations

Reasons for enrolling. Participants were presented with a list of possible reasons for enrolling and were asked to rank order their first four choices. (For a complete breakdown of responses, refer to Table 1). The primary reason given was an interest in the computer-mediated communication process itself. Interestingly, the "other" category, which received as many first choice marks, described applications that were related to the communication, rather than the educational process. For instance, respondents were concerned with communicating via computer, in using the medium for problem-solving and for helping

TABLE 1

Reasons Given for Participating in a Computer-Mediated Seminar

	# respondents choosing this as 1st, 2nd, or 3rd reason		
	1	2	3
a) I am very interested in the subject matter.	3	3	3
b) I am very interested in participating in an alternative form of continuing education.	3	5	-
c) I am very interested in having access to top experts in the field.	-	3	1
d) I am very interested in having access to new information.	1	-	2
e) I have a desire to meet new people.	-	-	1
f) This seminar will be valuable to my career.	-	1	1
g) I am very interested in participating in computer-mediated communication.	5	3	-
h) My company offered to support my enrollment.	1	1	1
i) Other (describe) (Includes interest in process, use for problem-solving, improving international communication)	4	-	2

international communications and relations. Interest in the subject matter and in participating in an alternate form of continuing education were also cited as primary motivations.

The most common second reason for participating was the interest in an alternative form of continuing education, followed by interest in subject matter, communication process and having access to top experts in the field. This last category received the great majority of votes as a third reason for enrolling, and along with interest in the conference as an educational environment received the greatest overall number of marks, although was NOT chosen at all as a main reason for enrolling.

Thus, the people in this group are more motivated by the prospect of using a new form of communications medium and the process of communicating than by the educational rewards they expect to receive. Expanding one's social network to include experts in the field, while not a principal motivator, is also a very strong enticement for these particular students.

Expectations from an educational computer conference. The benefits new students expect to receive from these seminars are related to using this communication process to expand their intellectual and educational horizons. In content-analyzing the open-ended responses, the word "views" appeared most frequently--people expected to find new ways to view complex topics, to share their own views, and to explore the views of leaders and professionals in the field. They also expressed interest in the idea of using and becoming relaxed with a new communications technology and with increasing the network of professional

associates. Broadly speaking, such expectations again are seen to be related to the process and concept of communicating ideas, which differs from the more traditional meanings and processes associated with education in a normal classroom context.

Personal goals. When asked what types of individual, personal benefits they expect to gain from their experience, the new students turned their focus to expanding their social relationships and emotional benefits. Most hoped to form new friendships and colleagial netw rks and to enrich their experiences with people. Students also expected to find pleasure, therapy, introspection and confidence through their participation. Several people mentioned that they also intended to improve their ability to express themselves in writing via this medium. Personally, social interaction and self-improvement are the main goals of the respondents.

Evaluations by Continuing Students

Educational evaluation. The educational value of this particular institution received mixed reviews from students who had attended at least one previous semester. Although the system was acknowledged as being useful for the diffusion of new theories and knowledge and for getting insights into new subjects or views, there was dissatisfaction with the structure and learning strategies used. No sufficient formal structure or instructions existed; one student said he was "self-taught" throughout the seminar. The lecture style format facilitated "mostly superficial information." Simulations would be preferable for promoting the "flow of creative juices." Disappointment was evident, although not emphasized. Perhaps

this can be attributed to the types of reasons these people had for enrolling, which may be similar to those of the new students and center on fascination with the medium and communication process.

The computer conference as communications medium. The particular conferencing system utilized for these seminars, and the communication process itself, were rated as being quite good, with certain reservations. Respondents seemed to enjoy using the computer, but added that it was not "a magic substitute for or improvement over other written media" (books, letters, papers) and that there were occasional mechanical problems that interfered with satisfactory use.

Social and group interactions. The quality of the social interaction among the seminar participants was most frequently considered to be variable at best. Interaction was "sometimes outstanding, often terrible" and "fantastic when people are actively involved" but seemed to become boring and "old hat" as time passed. Personal involvement depends on individual schedules and a variety of other reasons, and often decreases, attributed by one person to the narrowness of scope of the sessions.

Most and least successful aspects. Those areas in which the seminars were judged to be most successful were at providing potentially open forums for frank exchange and getting acquainted with new ideas, and for providing a communications technology by which one could gain new friends. The least successful features included the failure of faculty and equipment to perform

adequately, the lack of simulations for people to assume "worldly and different roles," the poor participation of many students, and the lack of a mechanism to ensure greater active involvement. Content was apparently not stimulating enough to motivate continued active involvement.

Participation levels. When asked to rate their level of participation, four out of five continuing students stated that currently they "primarily logged into conferences to read the current entries but rarely entered comments." One entered comments only half the time. Three had originally logged in and entered comments more frequently, but changed their patterns over the course of one or more semesters. Of these respondents only one logged in 7 or more times a week; two logged in only once a week and the other two logged in from 4 to 5 times weekly. Here, too, respondents mentioned a decline in participation on a weekly basis. Subsequent interviews will be conducted in the future to better understand why this phenomenon occurs; the few informal interviews recently conducted reveal some intriguing emotional issues that may be responsible for these people's behavior, and these will be discussed in the next section of the paper.

Social interactions via other media. Prior to their participation in these seminars, four respondents knew other participants, either as friends and business colleagues. During the course of the seminars, all had made new friends and associates. During the seminar months, all five maintained contacts with these friends and colleagues face-to-face, on an average of once a month. All five also communicated with these people one to four times a month via telephone. Three students

communicated by mail, usually infrequently; one respondent, however, wrote letters on a weekly basis. This indicates that additional contact outside the computer environment is needed and is maintained. Such contact is desirable for the establishment of a true interactive community.

Intriguing Issues

Although the computer conferences discussed here take place within an educational context, many of the important issues that have been brought up by participants or have been discerned through looking at survey data and informal interview responses reflect basic human communication patterns relevant to the entire computer conferencing genre. This research has never been boring; it has contained continual (and often abrupt!) reminders that people will be people, with certain feelings and problems that transcend the use of any specific medium, yet which may influence their media use and satisfaction.

The issues presented in this section deal with personal feelings and communication dynamics that may enhance or hinder active participation or satisfaction. This section discusses some intriguing barriers to doing this type of research that may be important considerations for policy-makers or communications system planners, as well as to researchers and educators. The intention was not to find fault with the system under study, but to understand the types of problems people encounter under these conditions.

Socio-emotional needs. Previous studies in the computer conferencing area have shown that very personal, emotional

communication can be easily accommodated by this medium. Hiltz (1978), Kiesler et. al. (1982) and Phillips (1983) point out that people can and do express such varied emotions as anger, joy, frustration and humor via computer. People can also learn to express politeness within newly formed conferencing "cultures" where forms for shared meanings may develop (Hiemstra, 1982). Although in certain business or educational situations people may prefer not to use the medium for intimate messages (Rice & Case, 1983,) it is clear that human beings engaged in the act of communicating need to have an opportunity to express their feelings if true, open interaction is to occur.

Fear of ostracism. Many pre-semester participants stated that they looked forward not only to the educational experiences offered by EDCOM but to the chance to use a new communications medium that would provide an open forum for the exchange of new ideas and views. In the course of subsequent interviews and information gleaned from the surveys, there were frequent complaints of feeling ostracized for expressing opposing, dissenting views or opinions. Although those few transcripts viewed reveal little overt criticism of such dissenters by others, the ostracism seems to be conveyed more subtly, through the ignoring of their comments by others, for instance. Those who complained said they were not worried about getting into arguments at all, but were concerned about being left out for even daring to "commit the act of being critical."

With a relatively homogenous population, some students perceive that there is an "elite A-team" who use these educational seminars to express personal views but not incite a

great deal of controversy or to encourage creative brainstorming. Within this particular framework, people often are seen as speaking "at" one another rather than with one another. Whereas one member joined to seek free, effortless and open communication, what he felt he got was instead was a "medium of protection" for a certain verbal contingent; in his mind the participants involved most frequently tended to "stand next to, not behind issues." Another respondent noticed a lack of "eagerness to communicate, to converse, argue or gossip" within the seminar conferences, lamenting that there was "no real gut feeling of excitement" here. The seminars soon became boring for him, and "the topics of general consideration were soon exhausted." He suggested looking into some commercially available conferences for controversial, exciting interaction, which would provide more "spontaneity, missiles being fired, and openness."

Certain people seem to anticipate using an educational technology with the enormous potential for interaction as a means for exchanging often untried and possibly "half-baked" or divergent thoughts with others to provoke reactions or arguments in a more dialectical manner. The lack of simulations within the seminars where people could take on "other, real world roles" inhibits the type of futuristic planning expected by many, and is cited as a negative aspect of this program. On the other hand, there are those who prefer to enter what one participant called "rehearsed" edited comments, often of considerable length, in which they express the full range of their ideas. For these

people, the opportunity to make in-depth comments is a positive aspect. The solutions to this situation remain to be found, but limiting the length of entries and creating some sort of mechanism to encourage participation by "dissenters" are two suggestions made by students. This might also help ease the "overload" problem created by longer entries which take a long time to read and digest.

Status consciousness of participants. Much of the discomfort expressed by students who have not become deeply involved in the conferences stems from a perception that there is indeed an established "in-group" who tend to converse on the "same intellectual level" making it hard for a "weaker" person to break in. One person entered the seminars expecting to find a "brotherhood" but instead discovered a rigid hierarchy that appeared intimidating. For the active members there was a great deal of interaction within conferences, but for this newcomer, there seemed to be no entry point. Thus he became, as did many other students, a passive participant, often reading conference comments but rarely adding comments. Although most students appear to be quite self-motivated, many admitted that they did not care to join in as active members.

The formation of active cliques within a computer conference has been observed before; Kerr & Hiltz (1982) found that 50% of comments were made by 10% of the members. The need for overt acceptance into a new communication situation, even if it is technically an electronic classroom, is very strong. Even students who have been involved for several sessions are conscious of this need to achieve "member" status. Several

experienced participants felt that the EDCOM system lacked good mechanisms for making new members feel comfortable in entering a conference or for making old members feel it worth their time to reiterate their ideas to new students. Although the seeming exclusion of "outsiders" appeared to others to represent a "snooty, we're hot and you're not" attitude, this may be due to the structure of the educational system rather than merely to personalities involved.

This research revealed another fascinating aspect of "status consciousness" associated with participation in this conferencing system. Several members talked about feeling "important by association" with the educational organization and with the medium itself. When probed for further insights, one person revealed an obsession with the technology and a feeling of self-importance gained from being associated with an innovative program that overrode the need to do the assigned homework or have "real involvement" in the seminars. Thus mere membership in an elite group conferred status and in this case the difficulty of gaining access to the small core group of active students was to some degree accepted in view of the greater status accrued.

The need for personal feedback and evaluation. The need for recognition extends beyond the acknowledgment of one's ideas within the educational context (Brewer, 1980). One major barrier to increased participation noted by students is the lack of some mechanism by which each person receives some personal attention from the organizational leaders. Although these students are mature, experienced business and academic professionals, they are

still human beings who need care and the sense that someone is concerned with their progress. As one person stressed, "it's lonely as a participant;" often no one is on the system at the same time and "it's like talking to a black hole." Formal feedback to questions or comments does not always appear. Furthermore, several students mentioned that there is simply no one who notices whether or not they are on the system or who inquires as to the problems they may be encountering.

It must be unnerving for a participant to feel that there is "no hope of rescue" from problems. Perhaps what the system lacks is appropriate educational leadership. Educators have long realized that feedback is essential to maintaining motivation as well as aiding learning. Educational software designers (e.g. Bork, 1984 & Malone, 1981) stress the need to incorporate feedback features into effective software.

Unlike a classroom, where the teacher can see at a glance which students are interested, confused or bored, the computer environment offers no direct cues. Instructors might be called upon to serve as creative facilitators, making a conscious attempt to communicate with all their students during the seminar session to identify problems not only with course material but with other pertinent areas including the technology, and the nature of the social networks formed. If someone is not actively participating, how does this relate to course content, for instance, or to the feeling of being an outsider? Without constant feedback, the instructor cannot know the needs and feelings of his or her students; without feedback, students have no idea as to the instructor's awareness of their individual

situations. The problem may not stem from instructors' lack of awareness, but from lack of experience in this medium. Awareness does exist: Pease, in a 1983 study of non-visual interactive media, found that instructors considered their roles to be dual ones, as teachers and facilitators.

The lack of feedback from the organizational leaders is itself cited as a reason for decreased participation. Personal messages to each participant need not be sent on-line, but could be sent via any convenient medium. As one person explains, "if I had only received one phone call during the seminar, only one example of someone truly caring about me, I would have felt better about being more active." The importance of contact and personal evaluation when dealing with a medium that offers only a written mode cannot be stressed enough; this may seem to be an obvious statement, but in truth the idea of interaction as essential to human communication is often overlooked.

Novelty as a motivator. The survey data and the interview notes revealed a strong, and not entirely unexpected pattern of active participation among students. All but one of the students who had attended previous seminars noted that their rate of active participation had decreased over time. There were many explanations for this decline, including those mentioned above, but the fact that "the deterioration is in part due to the fact that the newness has worn off," as one person stated, seemed to be a common thread running through all the responses.

Novelty, of the technology, concept and content of the seminars, is a strong motivator, particularly for people who

consider themselves to be innovators. Once the initial sense of excitement (and occasional confusion) felt at learning a new means of communicating and establishing a social network has worn off, there must be new challenges to keep interest high. The seminar topics and instructors change each month, but "we tend to hear the same opinions over again, framed a little differently." One student suggested that EDCOM change the "poor architecture" of the system, perhaps incorporating simulations or other educational strategies that "do not seem so much like lectures." Although course material was often described as stimulating and the network of new friends and ideas rewarding, the conferencing context has a lifetime of its own, perhaps not exceeding one year.

Barriers to research: the researcher as Secret Agent. Of all the issues discussed with participants, none aroused more anger nor provoked more heated debate than the privacy of conference communications. A tremendous argument ensued when the presence of researchers was announced, with several participants loudly voicing serious objections.

At the heart of the controversy is the very nature of a computer conference, especially when being used for adult education. Does the fact that written transcripts are technically available make the conference resemble an open session, accessible to anyone with the technology to obtain printouts? Or are the conference transactions more like private communications (similar to private computer mail) subject to "tapping" like the telephone? What rights do researchers have to enter into a "closed" private community to observe and how can

the results be used?

The potential for non-obtrusive observation can lead to the temptation to spy, and several participants expressed their fear of outside observers acting like Secret Agents, raiding conferences at will. Researchers should announce their presence, for ethical reasons. Yet, like an anthropologist entering an alien culture, the awareness of that presence may act as an inhibiting factor. The essence of the worry lies in the lack of control over the "intruder's" behavior felt by those people who were concerned. The students of this seminar represent a wide array of professional interests and experience and there is a sense of belonging to a private community or a small but fairly structured cultural unit. A participant observer may be perceived as an invader, violating very private space, and be considered analogous to a computer hacker breaking in!

This poses a very serious consideration for future researchers--such feelings are bound to arise, particularly when working within a context where members have paid a high tuition fee and have very specific expectations about the nature of the electronic classroom environment. Yet, there is a need for more in-depth study of computer conferencing, as it represents the flexibility and diversity of human communicative behavior. It appears that education and computer conferencing for this group may indeed be complementary rather than contradictory concepts, but the successful adoption and generalizability to other types of user groups will depend upon continued feedback, evaluation, and refinement.

** EDCOM is not the real name of this organization; neither the organization nor the conferencing system used are identified here, for the sake of confidentiality.

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